

**TRIP REPORT FOR THE  
METALLURGICAL PRODUCTS  
SOIL SAMPLING EVENT  
PHILADELPHIA, PENNSYLVANIA**

*Prepared for*

**U.S. Environmental Protection Agency**  
1650 Arch Street  
Philadelphia, PA 19103

*Prepared by*

**Tetra Tech EM Inc.**  
7 Creek Parkway, Suite 700  
Boothwyn, PA 19061

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Prepared by

Approved by



Project Manager

START Site Assessment Manager

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## **1.0 INTRODUCTION**

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-05-02, Technical Direction Document (TDD) Nos. E33-024-08-09-002 and E43-030-09-07-007, U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech EM Inc. (Tetra Tech), to conduct a site inspection (SI) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in support of site assessment activities conducted at the former Metallurgical Products site located at South 35<sup>th</sup> Street and Moore Street in Philadelphia, Pennsylvania 19145. The data collected during the SI will be used to determine the need for additional assessment or response activities at the site or in the surrounding area.

This trip report provides site background information in Section 2.0, describes investigation activities in Section 3.0 and summarizes the analytical data and provides conclusions in Section 4.0. All references cited in this report are listed in Section 5.0. All figures are included in Appendix A and a copy of the logbook documentation is provided in Appendix B.

## **2.0 SITE BACKGROUND**

Former potential lead smelter sites nationwide were identified in an April 2001 article published in the American Journal of Public Health by Eckel, and others (Eckel study) (Reference [Ref.] 1). The majority of these former potential lead smelters operated prior to 1964 and closed before the current environmental regulations were instituted. As part of the Eckel study, soil samples were collected from several of the identified former lead smelter properties. Results from the analysis of these soil samples indicated that concentrations of lead exceeded EPA's soil screening level for lead in residential soils. The results of the Eckel study indicate that the air disposition of lead into soils from former smelter operations may present an ongoing public health concern due to exposure of residential populations, especially children, to soils containing elevated concentrations of lead (Refs. 1, 2, and 3). One of the sites identified in the Eckel study was the Metallurgical Products site formerly located at South 35<sup>th</sup> Street and Moore Street in Philadelphia, Pennsylvania. Each former smelter property was given a number in Eckel's study. The Eckel study number for this site is 312 (Ref. 1).

The geographic coordinates of the former Metallurgical Products site are 39.9322° north latitude and 75.2038° west longitude on the Philadelphia and Camden, Pennsylvania – New Jersey Quadrangle, 7.5 minute series, United States Geological Survey topographic map (see Appendix A, Figure 1). The site is identified in EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database as the Metallurgical Products site, CERCLIS ID Number PAN000306639 (Ref. 4).

Tetra Tech completed a windshield reconnaissance of the site and surrounding area on April 8, 2009. The former smelter appeared to have been redeveloped with a youth baseball field. The property is located in a commercial and/or light industrial area consisting of large warehouse type structures. Based on the current usage of the former smelter site (youth baseball field), Tetra Tech recommended that a soil sampling event be conducted at the former Metallurgical Products site.

### **3.0 INVESTIGATION ACTIVITIES**

On July 17, 2009, Tetra Tech collected in situ and ex situ soil samples from the former Metallurgical Products site. The samples were analyzed for lead concentration using a Niton model XLt portable x-ray fluorescence (XRF) analyzer, calibrated to analyze bulk soil samples using a cadmium<sub>109</sub> radioactive source. XRF analysis was performed in accordance with EPA Emergency Response Team (ERT) Standard Operating Procedure (SOP) No. 1707, "X-MET 880 Field Portable X-Ray Fluorescence Operating Procedures" (Ref. 5).

Tetra Tech collected in situ soil samples from 29 randomly selected locations on the property (see Appendix B, Logbook Documentation). The in situ lead levels recorded ranged from concentrations below detection limits (< 13.0 parts per million [ppm]) to 206.0 ppm. To confirm the results of the in situ readings, Tetra Tech collected soil from four locations for ex situ XRF analysis. The samples were collected from 0 to 6 inches below the ground surface (bgs). Each sample was placed in a plastic Ziploc bag and transported to the Tetra Tech Boothwyn office for XRF sample preparation and analysis.

The ex situ sample preparation steps included:

- Placing a 50-gram aliquot of homogenized soil in a labeled baking cup
- Placing baking cup in oven for 2 hours at 350° F
- Screening the dried, 50-gram sample through a #10 mesh sieve (60 micron)
- Placing sieved sample in labeled XRF analysis cup
- Placing clean paper over sample in cup, place cotton ball over paper, and snap on the sample cup cover

Each XRF sample cup was placed into the portable XRF for analysis. Table 1 below summarizes the results. Sample locations are provided in Appendix A, Figure 2.

**TABLE 1**  
**XRF ANALYTICAL RESULTS SUMMARY**

| <b>Sample ID</b> | <b>Location</b>                       | <b>Analyte</b> | <b>Result (ppm)</b> |
|------------------|---------------------------------------|----------------|---------------------|
| MP-01            | Outfield, along first base line       | Lead           | 36.3                |
| MP-02            | Right field area                      | Lead           | 62.0                |
| MP-03            | Center field area, behind second base | Lead           | 108.9               |
| MP-04            | Center field area                     | Lead           | 241.6               |

Notes:

MP = Metallurgical Products

ppm = parts per million

XRF = X-Ray Fluorescence

#### **4.0 ANALYTICAL RESULTS SUMMARY AND CONCLUSIONS**

EPA has established a soil screening level (SSL) for lead in residential soils (400 ppm) and industrial soils (800 ppm) (Ref. 6). The SSL can be used as a guidance level to identify sites that may pose potential risk and warrant additional assessment. The SSL established for residential soil of 400 ppm is a risk-based concentration calculated for a bare soil child's play area and the level established for industrial soil is the risk-based concentration for a non-play area (Ref. 7). As shown in Table 1, none of the lead concentrations recorded for ex situ samples collected from the former smelter site exceeded the residential soil (play area) or industrial soil (non-play area) SSLs. The ex situ analytical results confirmed the results obtained during the in situ sampling,

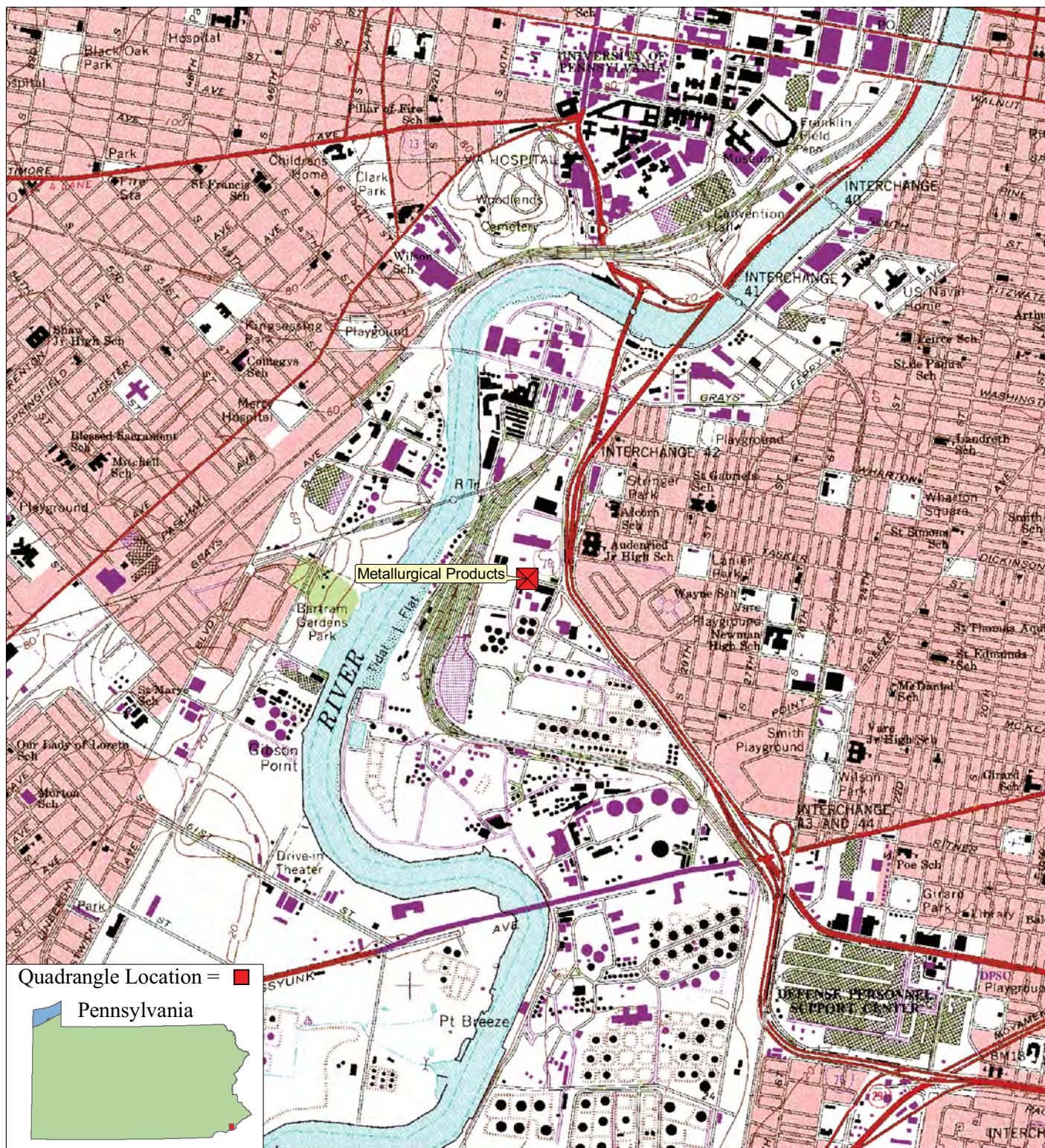
which indicated a maximum lead concentration at the former Metallurgical Products site, of 206.0 ppm.

## 5.0 REFERENCES

1. Eckel, W.P., Rabinowitz, M.B., Foster, G.D. American Journal of Public Health. "Discovering Unrecognized Lead-Smelting Sites by Historical Methods". April 2001.
2. Pennsylvania Department of Health. Suspected Former Lead Smelter Sites: A Potential Risk Factor for Childhood Lead Poisoning. August 2004.
3. U.S. Environmental Protection Agency (EPA). Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. OSWER Directive 9355.4-12. July 14, 1994.
4. U.S. EPA. Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) database. On-Line Address: <http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm>
5. EPA. SOP 1707. "X-MET 880 Field Portable X-Ray Fluorescence Operating Procedures." ERT. Edison. December 1994.
6. EPA. Regional Screening Level Table Master April 2009. May 19, 2009. Available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/pdf/master\\_sl\\_table\\_run\\_April2009.pdf](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_run_April2009.pdf)
7. Agency for Toxic Substances & Disease Registry. Case Studies in Environmental Medicine (CSEM). "Lead Toxicity, What are the U.S. Standards for Lead Levels?". Available at: [www.atsdr.cdc.gov/csem/lead/pb\\_standards2.html](http://www.atsdr.cdc.gov/csem/lead/pb_standards2.html)

**APPENDIX A**  
**FIGURES**





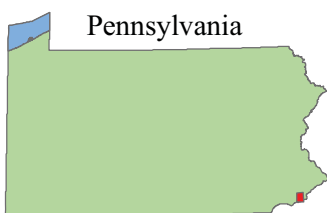




Source: Modified from DigitalGlobe aerial photography, October 2006.

0 50 100  
Feet

Approximate Site Location = ■



Pennsylvania

Atlantic Metals Corporation Site  
2117 East York Street, Philadelphia, Pennsylvania 19125

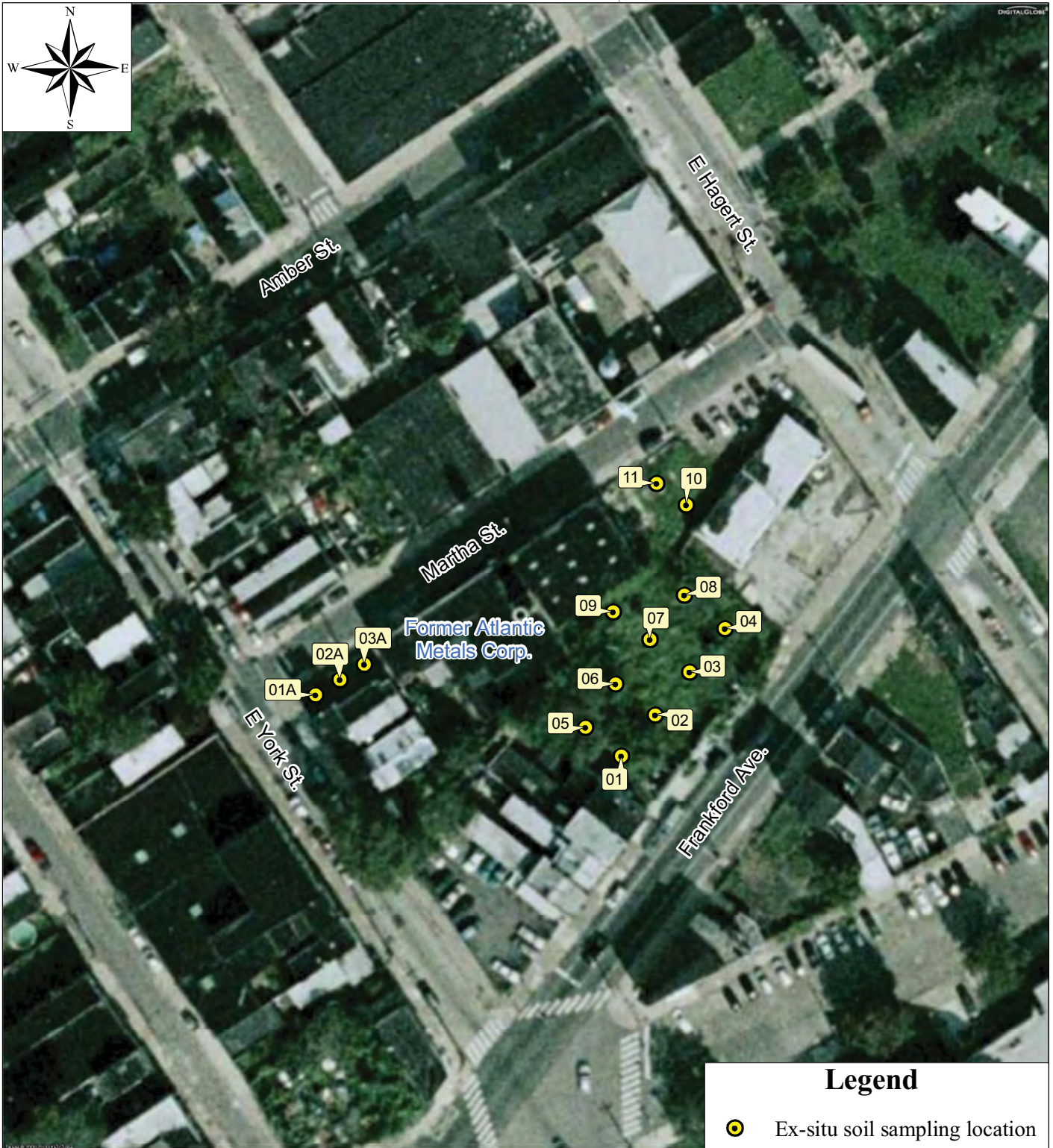
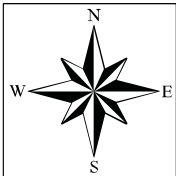
**Figure 2**  
Site Layout Map

TDD No. E33-024-08-12-001  
EPA Contract No. EP-S3-05-02

Map created on February 24, 2009  
by D. Call, Tetra Tech EM Inc.

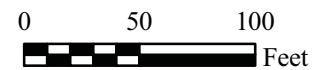




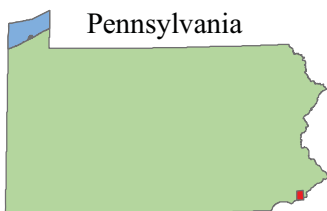


Source: Modified from DigitalGlobe aerial photography, October 2006.

Note: For the sake of clarity, the prefix 'AM-' has been omitted from the sampling location labels.



Approximate Site Location = ■



Atlantic Metals Corporation Site  
2117 East York Street, Philadelphia, Pennsylvania 19125

**Figure 3**  
Sampling Location Map

TDD No. E33-024-08-12-001  
EPA Contract No. EP-S3-05-02

Map created on February 24, 2009  
by [REDACTED] Tetra Tech EM Inc.



**APPENDIX B**  
**LOGBOOK DOCUMENTATION**

Metallurgical Products  
7/17/09 - 0953 START Arves  
Sunoco concentration

| Location | Reading (ppm)                |              |
|----------|------------------------------|--------------|
| 1        | 24.1                         |              |
| 2        | 34.3                         |              |
| 3        | 37.8                         |              |
| 4        | 36.5                         |              |
| 5        | 35.0                         |              |
| 6        | 28.8                         | MP-01 @ 1020 |
| 7        | 55.0                         |              |
| 8        | 20.5                         |              |
| 9        | 21.5                         |              |
| 10       | 26.2                         |              |
| 11       | 46.8                         |              |
| 12       | 35.4                         | MP-02 @ 1035 |
| 13       | Below detection limit (22.1) |              |
| 14       | Below detection limit (213)  |              |
| 15       | 22.1                         |              |
| 16       | 38.6                         |              |
| 17       | 39.3                         |              |
| 18       | 14.9                         |              |
| 19       | Below detection limit (43.2) |              |
| 20       | 75.7                         | MP-03 @ 1051 |

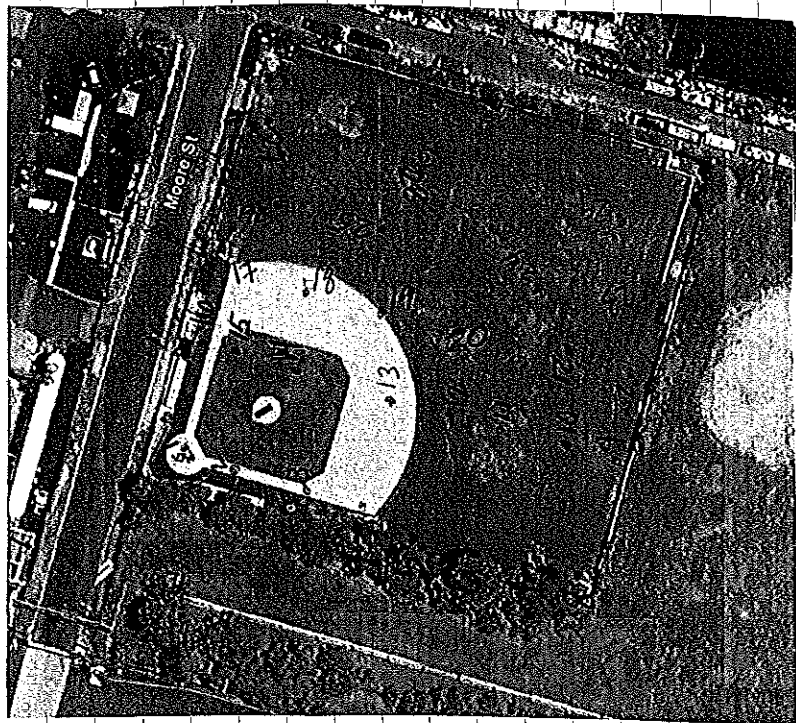
Metallurgical Products (Cont'd) Friday 7/17/09  
Location Reading (ppm)

|    |       |
|----|-------|
| 21 | 41.6  |
| 22 | 218.1 |
| 23 | 206.0 |
| 24 | 50.4  |
| 25 | 44.8  |
| 26 | 40.0  |
| 27 | 70.3  |
| 28 | 61.0  |
| 29 | 87.3  |

- START split samples (4 total)  
with Sunoco's consultant, Aquaterra.  
- Exsite sample locations indicated  
on aerial attached to net page.  
- Exsite readings were so low,  
START decided to collect only 4  
samples for in-site analysis.  
MP-01 MP-02 MP-03 and MP-04  
= START returns sample locations  
to prevailing conditions on the  
site is presently a youth ballfield.  
230 START office -



# Metallurgical Products (Cont'd)



Exsiter XRF Readings:

MP-01 = 36.3 ppm (+/- 8.4)

MP-02 = 62.0 ppm (+/- 9.6)

MP-03 = 108.9 ppm (+/- 12.2)

MP-04 = 241.6 ppm (+/- 17.7)